

Enhancing Education Through Technology (EETT) Competitive Sub-grant Application Assurance Sheet

Project Title: Roving Wireless Laptop Computer Lab Amount of Request: \$ 56,367.05
 District Name (Fiscal Agent for Consortiums): Pocatello/Chubbuck Number: 25
 Please list the school name, and indicate whether it is a targeted school or a partner school and
 certify the CIPA compliance for all participating schools within the project:

| Dist. # or 'P' for Private School | School Name | This school is a targeted school 'T' or a partner school 'P'. | This school is in compliance with the CIPA as outlined on page 3 of the guidance document. | |
|--|-----------------------|--|--|----|
| 25 | Pocatello High School | <u>T</u> P | <u>YES</u> | NO |
| | | T P | YES | NO |
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| | | T P | YES | NO |

I certify that we have contacted the charter and private schools in our area about
 participation in this grant.

| | | |
|---|--------------------------------------|---------------------------------|
| Superintendent Name Mary M. Vagner | E-mail vagnerma@d25.k12.id.us | Telephone (208) 235-3206 |
| Signature | | |
| District Technology Coordinator Name Bob England | E-mail englanbo@d25.k12.id.us | Telephone (208) 235-2295 |
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| Project Director Name (if different than District Technology Coordinator) Mark Edwards | E-mail edwardma@d25.k12.id.us | Telephone (208) 233-2056 |
| Signature | | |

Abstract:

With over 160 combined years of experience, the science department faculty at Pocatello High School has seen many developments in education come and go. They are convinced, however, that technology has changed everything about education except the core classroom relationship of a teacher leading a group of 25 to 35 students toward knowledge. But even this relationship is challenged by the enormous technological changes in communication and media. The classroom relationship needs a boost from the very technology that has challenged it. Fifty years ago a student could experience a learning concept in a science lab that they could not find any other place in their world. Today's teachers find it increasingly more difficult to keep students interested, even in lab situations. The one thing that students love to do is work on a computer. Like most schools, only a small percentage of PHS students can be on a computer at one time. The problems of taking a class to a computer lab are many. Even though the science department at Pocatello has over 50 excellent software products to broaden their students knowledge base, they cannot use most of them due to a dearth of available computers in the school. The PHS science faculty believes that they could be much more effective in presenting concepts, data manipulation, testing and test preparation, and science and technologic literacy if they had easier and faster access to a computer lab.

A Roving Wireless Laptop Computer Lab (RWLCL) not only offers an immediate solution to the problem of delivering software for virtual labs and data manipulation, but offers many other advantages and increases in positive outcomes of specific behavioral objectives. It is anticipated that a roving laptop lab would improve student test scores on ISAT and District final exams, increase many times the use of technology during instructional time, and improve teacher effectiveness due to increased planning and better use of existing software. If this concept is implemented and success is demonstrated, it is hoped that the district will wish to pursue similar technological peridigm shifts in other AYP stricken areas like Special Ed, Mathematics, English, and Language.

Once this proposal is implemented, the Grant Evaluator, who has had experience in testing and measurement will develop and implement an observable method to show success of the project. Establishment of baseline data will allow a long term evaluation of the effectiveness of computers in the science classroom. Furthermore, at least 25% of the grant's total cost is dedicated to effective training of teachers in Professional Development solely for the purpose of expanding their skills of instructing with computers and efficiently using the available software. After the project is finished, teachers will continue to train others on the use of RWLCL's as new teachers, departments, and schools in the area adopt the process and new software arrives.

Educational Need

Pocatello High School is the original downtown building (1895) in a community of 50,000 which has grown around a Union Pacific hub. The other two high schools in Pocatello have larger percentages of middle class and privileged students. The administration reports Fall, 2007 figures for free and reduced lunch at 34.7%, up nearly 8% from the previous year. The district has moved from strict school attendance boundaries to a more open enrollment policy. The relaxed transfer policies have transformed PHS to the “school of choice” for students from lower socioeconomic settings, thus increasing our population of students with less exposure to and experience with technology. The school’s graduation rate is the poorest in the district, with students dropping out because of poor home situations and/or a financial need to work. Often, students transfer here from the other two high schools or surrounding rural schools, only to drop out within the year, tagging PHS with the statistic. In spite of this, PHS has continued to send more than 50% of its graduates to college each year for decades. Although the school does not have access to rates of retention of from the colleges, it is commonly believed that computer research skills are critical to success for our graduates who go on to higher education. This data indicates an acutely increased need for our students to experience and have access to computers and computer-based instructional systems.

An increased reliance on test scores to indicate school needs has resulted in a push for district-wide final exams in the Pocatello/Chubbuck school district. The 9th grade Physical Science final (chemistry portion) is a good indicator of student needs from school to school. On the 50 item test, an item analysis shows that PHS students scored lower than the district average on 94% of the items. A more common measure of needs is the NCLB formula for adequate yearly progress (AYP). Based on scores on the Idaho Standards Achievement Test (ISAT), Pocatello High School did not make AYP in 2006-2007 in six areas: in both Reading and Math school wide, among economically disadvantaged students, and among students with disabilities, in both Reading and Math areas. This reflects the school’s higher percentage of students who come from lower income families. The advantages that computer-based instruction provide for students who have disabilities and economic handicaps is well documented. An increase in these opportunities and experience with computers would serve Pocatello High School students.

Staffing, planning, and curricular integration are strengths of the science department at Pocatello High School. However, the department lacks the ability to deliver a total package to our students because of inadequate access to computerized curriculum delivery systems. The department does not have its own computer lab. There is limited access to a “non-dedicated” lab housed in the media center. This lab is heavily used by all departments of the school and science teachers compete for booking classes into this lab. The disruption of moving students out of their classroom into a more open environment, and the timing differential between when a student will benefit from an exercise and the availability of the media center lab, serve to discourage teachers from utilizing this facility.

The science department has access to a plethora of computer-based resources, but limited opportunity to apply them. All of our new textbooks have virtual lab software, which allows students to experience labs that cannot be accommodated in the classroom due to cost, equipment, or safety issues. Interactive tutorial software also comes with the new texts. These provide practice with topics introduced by the textbook and the teacher. Online textbooks offer the entire text, quizzes, and practice with concepts while providing immediate feedback, but

teachers need ways to put an entire class on computers to use this advantage. The State of Idaho has a contract which provides every school in the State access to PLATO software, which can be used for individual remediation or for entire classes to reinforce concepts or drill facts through exercises and games such as "Who Wants to Be a Millionaire?" The science department has also acquired Vernier probe-ware sensors. The nine sets of nine different sensors are used in biology and physical science labs to interface with graphing calculators to work with data gathered during various lab exercises. Computers would make the data easier to view and work with. A classroom set of computers would give students access to and experiences with technology that is in use in college labs and many areas of industry. All of these are resources that science teachers would use more often and in more effective and less disruptive time segments, if a classroom set of laptops were available.

Local Project Detail

Pocatello High School will purchase 30 Dell Vostro 1000 XP Laptop computers, 2 Netgear Access Points, and a Bretford Laptop Storage Cart. Training from Dell, Vernier, National Science Teachers Association, and local Idaho State University professors will be provided to plan, initiate, and sustain a program of classroom laptop laboratory activities within the science department at PHS.

The goal of the project is to increase student performance in the areas of gathering, sorting, and analyzing data, drawing conclusions, and applying associated concepts. To accomplish this goal, the following objectives are proposed:

- * Technology use during instructional time will increase 100% over 2006-07 levels in 2007-08 as measured by the Technology Infusion Questionnaire.
- * Students will demonstrate a marked increase in their proficiency in analyzing data and interpreting graphs/charts based on comparison of Fall, 2007 ISATs to the Spring, 2008 ISATS.
- * Students will demonstrate better mastery of science principles based on comparison of scores on Fall, 2007 district finals to Spring, 2008 district finals in those science classes which have an established district exam.
- * Wasted time due to student movement between classroom and media center computer lab will drop significantly as measured by total number of in-class technology labs reported on the Technology Activity Log.
- * Student computer skills such as word-processing, internet searches, navigating web-pages and sites, and managing data will increase as measured by teacher response on the Technology Infusion Questionnaire.
- * Labs used in science classes will increase 100% over 2006-07 levels in 2007-08 based on the Technology Activity Log.
- * teacher evaluation and experimentation of curriculum software will increase 80% over 2006-07 levels in 2007-08 as measured on the Software Evaluation Log
- * students use of on-line textbooks and exercises will increase 100% over 2006-07 levels in 2007-08 based on Technology Activity Log.
- * Science department planning meetings will increase 50% over 2006-07 levels in 2007-08 as reported by the department head.

Through increased department planning, a schedule and protocol for the use of the laptop cart will be established. Emphasis will be placed on maximizing the use of the carts day by day and period by period. Labs and online textbook activities will usually require the full classroom set, but teachers may continue to use their groupwork skills by splitting the carts and having students work on web research and data manipulation projects in pairs, essentially doubling the effectiveness of the laptops. A training session by Dell at Pocatello High School will provide the technical skills for teachers to plan activities and troubleshoot issues that will arise from increased student use of the mobile lab. The teacher training sessions by Dr. Steven Shropshire and Dr. Rosemary Smith will increase teacher ability in teaching computer literacy, data gathering and manipulation skills, and analytical skills. Emphasis will be placed on lifetime technology literacy and computer skills. Students will be encouraged to explore scientific

inquiry in all fields, integrating projects to environmental, social, and industrial issues. A short-term goal is increased integration and sharing with faculty in other disciplines at PHS. Other training sessions on Vernier Probeware, a visit to a model school, and an evaluation in-service in Boise will increase teachers' skills and commitment to the project, technology literacy, and computer based instruction. Middle-term goals include sharing the progress of infusing computer technology into lab sciences with the science teachers in the other two high schools in Pocatello and possibly throughout Idaho. Regional and national participation in the National Science Teachers Association will keep the department abreast of current trends and developments in technology within science instruction. A long-term goal would be to have Pocatello High School science teachers present at the regional or national NSTA convention.

The Project Evaluator will develop and administer methodology for gathering data to determine the effectiveness of the project and the accomplishment of the objectives. Baseline data is being extracted for comparison to performance after the grant is initiated. Data from the Technology Infusion Questionnaire, Technology Activity Log, and Software Evaluation Log will be analyzed and compared to determine progress from the 2006-07 school year to the 2007-08 year. Because the grant would be initiated after second semester is well underway, '07-08 data may be spurious and subject to interpretation. Heavier emphasis should be given to data from '08-09, the first full year after implementation (Specific targets for improvement for '08-09 and subsequent years will be developed by the department after review of the current year's evaluation data). Data from student test scores are compared from Fall to Spring rather than year to year. This is done in order to assess progress within a class rather than from class year to class year. Documentation developed for the preparation of this grant application are viewed as an ongoing source of departmental evaluation.

Sustainability

The primary result of the grant will be the creation of a mobile lab cart of laptop computers for use in science classes at Pocatello High School. Science teachers will have been trained in the function of the laptops, as well as in use of technology and software to present concepts in laboratory format. The science department staff will have a working protocol for scheduling of the laptop cart, and there will exist a competitive commitment to maximize use of the resource. Since the science teachers will be viewed as “experts” in the infusion of software technology into classroom curricular activity, they will provide leadership for PHS and the district to move in this direction. The focus on computer based activities should increase within the school improvement plan and district in-service. If the concept of a Roving Wireless Laptop Computer Lab is implemented and success is demonstrated, it is hoped that the district will wish to pursue similar technological paradigm shifts in other AYP stricken areas like Special Ed, Mathematics, English, and Language. By switching to Roving Wireless Laptop Computer Labs, the district could foreseeably phase out the housed computer labs and would be able to further open up rooms for future classroom space needed as High School Redesign begins.

Once grant funds are depleted, the science department budget and district technology funds will be used to maintain, repair and replace equipment as necessary. School District #25 technology staff are committed to keeping all computer labs at full capacity throughout the district. Long-life batteries will be a part of each laptop purchase. These new batteries will last well through the scope of this project. After several years of battery use, new batteries will be purchased. The science department will continue to seek funds from all available sources, including the Pocatello High School Foundation, to acquire batteries, software, and other supportive technology. The district technology department and its’ director, Bob England are very interested in the concept of mobile computer labs for classroom use as well as testing and other uses. These factors will manifest in district-wide support for the success of this project.

Budget

For this project, we plan on purchasing 30 Dell Vostro 1000 XP Laptop computers, 2 Netgear Access Points, and a Bretford Laptop Storage Cart. Thirty laptops will be enough so that every student in a class can work individually, or the computers can be divided between classes. The access points will allow wireless connectivity to the Internet. The cart is designed to be plugged in at night to recharge the batteries of all thirty laptops.

Also, so we can get the best use of the equipment, the nine teachers in the science department would need opportunities for training. Dell Computers offers a 2-day laptop integration class for teachers, and Vernier can do a workshop on using probeware. We could also get a great deal from the National Science Teachers Association conferences; to maximize learning it would be best to have different groups of teachers go to different conferences (regional and national) possibly over a multi-year period. In addition, we would plan on visiting a school that is already using laptops so we can glean from their experience. Finally, Dr. Rosemary Smith, of Idaho State University's Biology department, and Dr. Steven Shropshire, physics professor at ISU, have agreed to do more personal training with continued follow-up.

| | costs | \$ per unit | quantity | # days | total |
|-----------------------------|--------------|--------------------|-----------------|---------------|--------------|
| Dr. Rosemary Smith: 1/2 day | subs | 79 | 9 | 0.5 | 355.50 |
| Dr. Steve Shropshire 1 day | subs | 79 | 9 | 1 | 711 |
| NSTA: various conventions | subs | 79 | 9 | 3 | 2133 |
| | travel | 500 | 9 | 1 | 4500 |
| | hotel | 100 | 9 | 2 | 1800 |
| | per diem | 30 | 9 | 3 | 810 |
| | registration | 120 | 9 | 1 | 1080 |
| Vernier Probeware Wrkshp | fee | 1200 | 1 | 1 | 1200 |
| | subs | 79 | 9 | 1 | 711 |
| Dell Computer Workshop | fee | 2500 | 1 | 1 | 2500 |
| | subs | 79 | 9 | 2 | 1422 |
| Visiting other school | subs | 79 | 9 | 1 | 711 |
| | travel | 100 | 1 | 1 | 100 |
| Eval. In-service in Boise | subs | 79 | 9 | 1 | 711 |
| | travel | 0.405 | 2 | 468 | 379.08 |
| | per diem | 30 | 9 | 1 | 270 |
| Project Evaluator | honorarium | 2800 | 1 | 1 | 2800 |

Training total: \$21,163.58

| Equipment | Cost | quantity | total |
|------------------|-------------|-----------------|--------------|
| laptops | 1104.24 | 30 | 33,127.20 |
| carts | 1799.95 | 1 | 1,799.95 |
| wireless router | 138.16 | 2 | 276.32 |

Equipment total: \$35,203.47

EETT Grant Total: \$56,367.05